**I Claim:**

1. A method of tracking facial features in a video sequence, said method comprising the steps of:

(a) receiving facial features for tracking in a first frame of said video sequence;

(b) spatiotemporally segmenting said video sequence to provide a sequence of associated two-dimensional segments, a first segment in said sequence of associated two-dimensional segments including said facial features for tracking;

(c) identifying candidate facial features in at least a second two-dimensional segment in said sequence of associated segments; and

(d) verifying which of said candidate facial features correspond with said facial features for tracking.

2. A method as claimed in claim 1 comprising the further step of:

(e) recovering lost facial features by using known geometric relations between facial features.

3. A method as claimed in claim 1 wherein step (c) comprises the sub-steps of:

(ci) forming a sub-image including said two-dimensional segment in said sequence of associated segments;

(cii) normalising the size of said sub-image; and

(ciii) identifying candidate facial features in said normalised sub-image.

4. A method as claimed in 1 wherein step (d) measures the correspondence between said candidate facial features and said facial features for tracking.

5. A method as claimed in claim 4 wherein step (d) comprises determining whether said candidate facial features are within a region of said facial features for tracking in a previous frame.

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6. A method as claimed in claim 5 wherein step (d) further comprises determining whether said candidate facial features within each of said regions that are similar in shape to said facial features for tracking in said previous frame.

10      7. A method of tracking facial features in a sequence of associated two-dimensional segments, a first segment in said sequence of associated two-dimensional segments including facial features for tracking, said method comprising the steps of:

(a) identifying candidate facial features in at least a second two-dimensional segment in said sequence of associated segments;

15      (b) verifying which of said candidate facial features correspond with said facial features for tracking; and

(c) recovering lost facial features by using known geometric relations between facial features.

20      8. A method as claimed in claim 7 wherein step (a) comprises the further sub-steps of:

(ai) forming a sub-image including said two-dimensional segment in said sequence of associated segments;

(aii) normalising the size of said sub-image; and

25      (aiii) identifying candidate facial features in said normalised sub-image.

9. A method as claimed in claim 7 wherein step (b) measures the correspondence between said candidate facial features and said facial features for tracking.

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10. A method as claimed in claim 9 wherein sub-step (b) comprises determining whether said candidate facial features are within a region of said facial features for tracking in a previous frame.

10        11. A method as claimed in claim 10 wherein sub-step (b) further comprises determining whether said candidate facial features within each of said regions that are similar in shape to said facial features for tracking in said previous frame.

12. An apparatus for tracking facial features in a video sequence, said

15 apparatus comprising:

means for receiving facial features for tracking in a first frame of said video sequence;

means for spatiotemporally segmenting said video sequence to provide a sequence of associated two-dimensional segments, a first segment in said sequence of

20 associated two-dimensional segments including said facial features for tracking;

means for identifying candidate facial features in at least a second two-dimensional segment in said sequence of associated segments; and

means for verifying which of said candidate facial features correspond with said facial features for tracking.

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13.    An apparatus as claimed in claim 12 further comprising:

means for recovering lost facial features by using known geometric relations between facial features.

14.    An apparatus as claimed in claim 12 wherein said means for identifying comprises:

means for forming a sub-image including said two-dimensional segment in said sequence of associated segments;

means for normalising the size of said sub-image; and

means for identifying candidate facial features in said normalised sub-image.

15.    An apparatus for tracking facial features in a sequence of associated two-dimensional segments, a first segment in said sequence of associated two-dimensional segments including facial features for tracking, said apparatus comprising:

means for identifying candidate facial features in at least a second two-dimensional segment in said sequence of associated segments;

means for verifying which of said candidate facial features correspond with said facial features for tracking; and

means for recovering lost facial features by using known geometric relations between facial features.

16.    An apparatus as claimed in claim 15 wherein said means for identifying comprises:

means for forming a sub-image including said two-dimensional segment in said sequence of associated segments;

means for normalising the size of said sub-image; and

means for identifying candidate facial features in said normalised sub-image.

17. A program stored on a memory medium for tracking facial features in a video sequence, said program comprising:

code for receiving facial features for tracking in a first frame of said video sequence;

code for spatiotemporally segmenting said video sequence to provide a sequence of associated two-dimensional segments, a first segment in said sequence of associated two-dimensional segments including said facial features for tracking;

code for identifying candidate facial features in at least a second two-dimensional segment in said sequence of associated segments; and

code for verifying which of said candidate facial features correspond with said facial features for tracking.

18. A program as claimed in claim 17 further comprising:

code for recovering lost facial features by using known geometric relations between facial features.

19. A program as claimed in claim 17 wherein said code for identifying comprises:

code for forming a sub-image including said two-dimensional segment in said sequence of associated segments;

code for normalising the size of said sub-image; and

code for identifying candidate facial features in said normalised sub-image.

20. A program stored on a memory medium for tracking facial features in a sequence of associated two-dimensional segments, a first segment in said sequence of associated two-dimensional segments including facial features for tracking, said program comprising:

code for identifying candidate facial features in at least a second two-dimensional segment in said sequence of associated segments;

code for verifying which of said candidate facial features correspond with said facial features for tracking; and

code for recovering lost facial features by using known geometric relations between facial features.


21. A program as claimed in claim 20 wherein said code for identifying comprises:

code for forming a sub-image including said two-dimensional segment in said sequence of associated segments;

code for normalising the size of said sub-image; and

code for identifying candidate facial features in said normalised sub-image.

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